

CLAIMS

What is claimed is:

- 1 1. A method comprising:
2 analyzing a data file representing a three dimensional object to
3 automatically identify a plurality of views of interest based on at least one
4 observable characteristic of the three dimensional object and
5 defining an access mechanism to permit the plurality of views to be
6 accessed. /
- 1 2. The method of claim 1 wherein defining comprises:
2 automatically creating an adjusted scale representation of each view of
3 interest; and
4 associating the adjusted scale representation with an actuatable control.
- 1 3. The method of claim 1 further comprising:
2 rendering a representation of the three dimensional object from the data
3 file; and
4 automatically translating the object to a corresponding view of interest
5 responsive to an actuation of a control associated with a corresponding
6 representation.
- 1 4. The method of claim 1 wherein the plurality of views includes all six
2 orthogonal views.
- 1 5. The method of claim 1 further comprising:
2 automatically eliminating views with an information content below a
3 threshold.
- 1 6. The method of claim 5 wherein the information content is determined
2 relative to other views.
- 1 7. The method of claim 1 further comprising:
2 permitting a user to create an additional access mechanism and associate
3 a user specified view with the additional access mechanism.

1 8. The method of claim 1 further comprising:
2 automatically creating a sequence for presenting the plurality of views
3 in a prescribed manner.

1 9. The method of claim 8 further comprising:
2 automatically presenting the sequence responsive to an event.

1 10. The method of claim 1 wherein the characteristic is one of:
2 shape of the object, texture map of the object, indicia of the object, local
3 detail of the object, and color of the object.

1 11. The method of claim 1 wherein analyzing the data comprises:
2 detecting symmetry of the object; and
3 automatically determining a primary axis of orientation for presentation
4 of the object.

1 12. The method of claim 1 wherein analyzing the data comprises:
2 automatically identifying homogeneity exceptions in the object.

1 13. The method of claim 11 wherein analyzing the data further comprises:
2 determining volumetric distribution of features of the object.

1 14. A method comprising:
2 rendering a three dimensional representation of an object from a data
3 file;
4 accepting a definition of a feature of interest;
5 searching the data file for a region substantially conforming to the
6 definition; and
7 displaying an orientation and magnification that permits viewing of the
8 feature.

1 15. The method of claim 14 wherein the definition is given by one of:
2 at least one stock criterion;
3 at least one user-specified criterion; and
4 a combination of user specified and stock criteria.

1 16. The method of claim 14 wherein the definition includes at least one of:
2 geometrical shape of the object, surface texture of the object,
3 indicia of the object, and local detail of the object.

1 17. The method of claim 14 further comprising:
2 highlighting the feature of interest in the orientation and magnification
3 displayed.

1 18. A method of comprising:
2 tracking user behavior when viewing a representation of a three
3 dimensional object;
4 inferring from the behavior a view of interest; and
5 defining an access mechanism to subsequently permit the view to be
6 automatically accessed.

1 19. The method of claim 18 wherein the view includes a specific orientation
2 and a specific magnification.

1 20. A graphical user interface (GUI) for accessing files of three dimensional
2 objects, the GUI comprising:
3 a selection window to simultaneously display a plurality of adjusted
4 scale views of three dimensional content accessible through the window;
5 a file access module to pass a selected file to an additional module for
6 further processing.

1 21. The GUI of claim 20 further comprising:
2 a rendering module to automatically generate the adjusted scale views.

1 22. The method of claim 20 further comprising:
2 a rendering module to render a larger size representation of content
3 selected in the selection window.

1 23. The GUI of claim 20 further comprising:
2 an animation module to animate a preselected content item within the
3 selection window to reveal alternative views of the item.

- 1 24. The GUI of claim 23 wherein animation of a content item occurs
2 responsive to a user input.
- 1 25. The GUI of claim 23 wherein animation occurs automatically in a
2 predefined sequence.
- 1 26. The GUI of claim 20 wherein the content in the selection window is
2 displayed in a three dimensional array.
- 1 27. The GUI of claim 20 further comprising:
2 an analysis module to identify a characteristic of each file; and
3 an organizer module to visually arrange the plurality of adjusted scale
4 views based on the characteristic.
- 1 28. The GUI of claim 27 wherein the analysis module:
2 analyzes the content of the files; and wherein the organizer module
3 changes a spatial arrangement of the adjusted scale views based on the content
4 of corresponding files.
- 1 29. The GUI of claim 20 further comprising:
2 a database of content characteristics to permit organization of content
3 based on the characteristics.
- 1 30. The GUI of claim 29 further comprising:
2 an attribute extractor to automatically identify characteristics of a new
3 content item; and
4 populating the database with characteristics of the new content item.
- 1 31. The GUI of claim 29 wherein a content item is automatically grouped
2 with a category based on a characteristic identified.
- 1 32. The GUI of claim 20 further comprising:
2 an organizer module to associate into a group, a subset of the files
3 within the selection window, based on characteristics of the files in the subset;
4 and

5 a summary module to automatically generate a single view within the
6 selection window, the single view representative of the group and replacing
7 the plurality of adjusted scale views of the subset.

1 33. The GUI of claim 32 wherein the single view is generated by
2 automatically selecting one of the plurality of adjusted scale views in the subset
3 according to defined criteria.

1 34. The GUI of claim 32 wherein the single view is generated automatically
2 by processing data from the plurality of adjusted scale views in the subset and
3 synthesizing a single composite view reflective of characteristics of the group.

1 35. The GUI of claim 32 wherein the single view is generated by identifying
2 the group as belonging to a known class of three dimensional objects based
3 upon the characteristics, and using a previously defined view as the single
4 view.

1 36. A method comprising:
2 displaying a representation of a three dimensional object in a viewing
3 window;
4 determining if movement of a control device is within a tolerance range;
5 and
6 automatically constraining rotation of the representation to a single axis
7 if the movement is within the tolerance range.

1 37. The method of claim 36 wherein the tolerance range is a function of
2 recent activity.

1 38. A method comprising:
2 displaying a representation of a three dimensional object in a viewing
3 window; and
4 automatically providing a scale indicator that relates to an actual
5 dimension of the object.

1 39. The method of claim 38 wherein the scale indicator is one of dimension
2 lines, coordinates, a grid, and a reference object.

1 40. A method comprising:
2 displaying a representation of a three dimensional object in a viewing
3 window; and
4 automatically providing a color reference to allow for calibration of
5 color of a display device.

1 41. A method comprising:
2 displaying a representation of a three dimensional object in a viewing
3 window; and
4 automatically selecting a display background based on at least one
5 characteristic of the object.

42. A method comprising:
2 analyzing a data file representing a three dimensional object to
3 automatically identify at least one observable characteristic of the three
4 dimensional object;
5 rendering a representation of a three dimensional object from the data
6 file; and
7 automatically adjusting a virtual light source to light the representation
8 to improve visibility of a characteristic of interest.

1 43. A machine readable medium having stored thereon instructions
2 which when executed by a processor cause the machine to perform operations
3 comprising:
4 analyzing a data file representing a three dimensional object to
5 automatically identify a plurality of views of interest based on at least one
6 observable characteristic of the three dimensional object; and
7 defining an access mechanism to permit the plurality of views to be
8 accessed.

1 44. A machine readable medium having stored thereon instructions which
2 when executed by a processor cause the machine to perform operations
3 comprising:
4 rendering a three dimensional representation of an object from a data
5 file;

6 accepting a definition of a feature of interest;
7 searching the data file for a region substantially conforming to the
8 definition; and
9 displaying an orientation and magnification that permits viewing of the
10 feature.

1 45. A machine readable medium having stored thereon instructions which
2 when executed by a processor cause the machine to perform operations
3 comprising:

4 tracking user behavior when viewing a representation of a three
5 dimensional object;

6 inferring from the behavior a view of interest; and
7 defining an access mechanism to subsequently permit the view to be
8 automatically accessed.

1 46. A machine readable medium having stored thereon instructions which
2 when executed by a processor cause the machine to perform operations
3 comprising:

4 displaying a representation of a three dimensional object in a viewing
5 window;

6 determining if movement of a control device is within a tolerance range;
7 and

8 automatically constraining rotation of the representation to a single axis
9 if the movement is within the tolerance range.